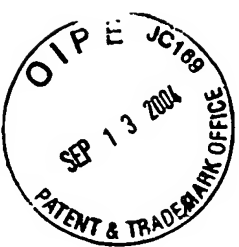


## IN THE SPECIFICATION

Please, enter the Substitute Specification enclosed. The Substitute Specification does not contain any new matter, it merely corrects the deficiencies the Examiner has pointed out in the outstanding and in the previous Office Actions.



## SUBSTITUTE SPECIFICATION

Patent Application of

**Marvin Byrd**

For

**TITLE: COMPANION RIDER WHEEL CHAIR**

### **BACKGROUND & CROSS REFERENCES TO RELATED APPLICATIONS**

This application is entitled to benefit of Provisional Patent Application Serial Number 60/263,496 filed on January 23, 2001.

### **FEDERALLY SPONSORED RESEARCH**

The invention that is the subject matter of the present application was not a recipient of any federal support for its research and development.

### **REFERENCE TO MICROFICHE APPLICATION**

Not applicable

### **BACKGROUND OF THE INVENTION**

This invention relates to the field of wheel chair devices that are used by the physically challenged for movement and convenience.

1

2           Most wheelchairs that are found in the market are custom made to fit a particular  
3 person, with specific height and width dimensioned to suit the physical configuration of  
4 the future user of the wheelchair. Furthermore, wheelchairs found in the prior art are  
5 relatively bulky and heavy and are not easy to store because of their complicated  
6 configuration, such as the cooperative escalator and wheel chair of Patent No. 4,326,622  
7 (Ellzey, 1982). With respect to wheelchairs with seats are divided, Patent No. 5,405,187  
8 (Söderlund, 1995) describes a wheelchair where the seat is divided longitudinally. With  
9 respect to motorized wheelchair devices, they are present in the prior art, such as the  
10 motorized invalid chair transport vehicle claimed in Patent No. D320,579 (Manning et al,  
11 1991), and in the universal electric wheeled chair described in Patent No. 4,941,540  
12 (Bernstein, 1990). Nevertheless, no prior art neither of lighter wheelchairs -such as the  
13 universal wheeled chair claimed in Patent 4,825,971 (Bernstein, 1989)- or of motorized  
14 wheelchair describe the use of a coupling devise to allow a standard wheelchair to be  
15 coupled to a motorized devise.

16           With respect to devices to hold the two members together when used as  
17 companion rider wheelchair, there are locks in the prior art such as the self locking, rattle  
18 resistant fork bolt described in Patent No. 6,022,166 (Rogers et al, 2000), but do not  
19 claim nor disclose the system used in the present invention.

20

## 21 **BRIEF SUMMARY OF THE INVENTION**

22           This invention constitutes a lightweight wheeled chair forming a companion rider  
23 device formed of hollow tubular frame members. The seat is preferably cantilevered from

1 rear frame members. The frame includes two lower side frame members having back  
2 wheels mounted at the rear ends and smaller castor wheels mountable to the front end. In  
3 one embodiment the front end of the two lower side members are coupled together using  
4 two coupling frame members inter-coupling the upper side and lower side frame  
5 members to permit adjustment and collapsing of the wheeled chair. Two upper side  
6 members extend forwardly from the rear of the wheeled chair, and are secured to the rear  
7 frame members. A seat may be supported directly on these two upper side frame  
8 members, or the two upper side frame members may serve as arms for the wheeled chair,  
9 with the seat being slung from these arms at a lower position. The present invention is to  
10 provide a lightweight wheelchair that can be used as a standalone wheelchair, as well as  
11 for a recreational use coupled to a motorized vehicle.

12  
13 Advantages of the new wheelchair include the fact that it is very lightweight, with  
14 the estimate of its weight being approximately 18 pounds. An additional advantage, of  
15 course, is the fact that it may be readily adjusted in height, from kitchen counter-top level  
16 to a much lower desk height level. The unit can be constructed to be foldable so that it  
17 may easily fit into the back seat or trunk of a car.

18  
19  
20 In view of the foregoing, various objects of the present invention include the following:

21  
22 1. One object of the present invention is to provide a lightweight wheelchair that can be

1 used as a standalone wheelchair, as well as for a recreational use coupled to a motorized  
2 vehicle, such as a motorized wheel chair.

3 2. Another object of the present invention is to provide a wheelchair in which the width  
4 of the wheelchair between the side arms may be readily varied, and wherein the height of  
5 the seat of the wheelchair may be easily changed.

## 7 BRIEF DESCRIPTION OF THE DRAWINGS

9 The invention will be more clearly understood after reference to the following detailed  
10 description of the preferred embodiment read in conjunction with the drawings, wherein:

12 Fig. 1. is a photograph side elevation view of a wheelchair illustrating an early  
13 embodiment of the present invention.

15 Fig. 2 A Illustrates a perspective view of the adjustable wheel chair with the towing bar  
16 device attached to it.

18 Fig. 2 B Illustrates a perspective view of the adjustable wheel chair with the castor wheel  
19 assemblies attached to it.

21 Fig. 3 is a sectional view of the adjustable companion rider wheel chair frame and the  
22 attachable towing device.

1 Fig. 3A illustrates the adjustable chair frame and the towing bar attachment.

2

3 Fig. 3B illustrates the coupling system of the motorized vehicle for pin coupling of the  
4 tow bar.

5

6 Fig. 3C illustrates the towing bar.

7

8 Fig. 3D illustrates the castors.

9

10 Fig. 4. illustrates an alternative embodiment of the wheelchair frame.

11

12 Fig. 5. is a photograph of the invention reduced to practice.

13

#### 14 **DETAILED DESCRIPTION OF THE INVENTION**

15

16 In accordance with one aspect of the present invention, a lightweight companion  
17 rider wheel chair, a frame having two lower side frame members 30, with wheels 42  
18 mounted at front end 31 and at rear end 32 thereof, and two rear frame members 33 , with  
19 the lower ends34 of each of the rear frame members 33 being secured to the rear ends 32  
20 of the lower side frame members 30. In addition, two forwardly extending upper side  
21 members 35 are provided, with these upper side frame members 35 being mechanically  
22 secured to the upper ends 36 of the two rear frame members 33. With regard to the arms  
23 and seat of the wheeled chair, they may be arranged in one of two alternative ways. As  
24 one alternative, the forwardly extending upper side members 35 may be the wheelchair

1 arms, and the seat may be supported by a sling from these arms. As another alternative,  
2 another set of forwardly extending upper frame members 37 may be provided, with this  
3 set constituting the arms of the wheeled chair, and the forwardly extending upper side  
4 members 35 constituting the support for the seat. (See Figures 2 A, B and 4 ). One feature  
5 of the invention is that arrangements maybe provided for changing the spacing of the side  
6 members, thereby causing the "X" configuration 38 to pivot about their central pivot  
7 point and have the arms of the wheelchair come closer or farther apart, and  
8 correspondingly raise and lower the height of the seat.

9

10 The height of the chair can be adjusted by adjusting the attachment of the castor wheels  
11 40 and the rear wheels 42. The castors 39 are attachable to the front end 31 of the lower  
12 side frame 30 with a coupling mechanism 4, 5. The castor wheels 40 can be attached in  
13 any of the several holes 8 provided in the castor wheel attachment 41. The rear wheels 42  
14 can be attached into any of the several holes 6 provided in the lower end 34 of the rear  
15 frames 33.

16

17 The rear wheels 42 can furthermore be adjusted depending of the weight of the person  
18 sitting in the chair by attaching the back wheels 42, into any of the several holes 7  
19 provided in the rear end 32 of the lower side frames 30.

20

21 In order to use the wheel chair as a companion rider, the castor assemblies 39 are  
22 removed and instead a tow bar attachment 1 is attached in the front ends 31 of the lower  
23 side frames 30. Alternatively, the tow bar attachment is permanently fixed to the front

1 ends of the lower side frames 30 (see Fig. 4). The rear end 45 of a tow bar 2 is attached to  
2 the tow bar attachment 1 with a pin-coupling coupler 46. The tow bar 2 is curved  
3 downwardly and the lowest part of the bar forms a rest for the feet 43. The front end 44  
4 of the tow bar 2 is coupled to a coupling mechanism 3 in the motorized vehicle with  
5 another pin-coupling coupler 47.

6  
7 Other features of the invention may involve one or more of the following:

- 8
- 9 1. The front ends 31 of the lower side members 30 may be coupled together with a  
10 combination of frame members and linear bearings, to maintain alignment of the lower  
11 side frame members.
  - 12 2. Advantages of the new wheelchair include the fact that it is very lightweight, with the  
13 estimate of its weight being approximately 18 pounds.
  - 14 3. An additional advantage, of course, is the fact that it may be readily adjusted in height,  
15 from kitchen counter-top level to a much lower desk height level. The unit may be  
16 collapsable so that it may easily fit into the back seat or trunk of a car.

17  
18 The invention is operated by coupling the wheelchair device to a motorized vehicle such  
19 as an electric wheelchair or golf cart by means of the pin-coupling device. The rider then  
20 can be pulled along for recreational purposes by the motorized vehicle.

21  
22 The invention can be used as a standalone wheelchair, or as a coupled device to a  
23 motorized devise. The wheelchair invention described here is also available as a



1 collapsible device so it can be stored and carried easily and conveniently, such as in the  
2 trunk of a car. The alternative embodiments described here are examples only; the scope  
3 of the invention shall be as described within the claims of the invention.

4

5         This device offers a unique device for transport and recreation of those persons  
6 requiring the use of a wheelchair for movement. It improves the quality of life of the  
7 physically challenged and allows for more mobility in the community at large. The scope  
8 of the invention described here is for example only. The scope of the invention shall be  
9 determined as described within the claims of the invention.

10

1            **SEQUENCE LISTING**

2

3    Not applicable

1    **ABSTRACT**

2           This invention constitutes a lightweight wheeled chair forming a companion rider  
3   device formed of hollow tubular frame members. A tow bar can be attached to the tow  
4   bar attachment with a pin coupling assembly. The tow bar attachment is mountable to the  
5   front ends of the lower side frame of the chair or it may also be permanently fixed there.  
6   The tow bar is downwardly curved from its middle and it has a feet rest. The height of  
7   the wheelchair may be adjusted by mounting the back wheels and the castor wheels in  
8   different adjusting holes provided in the chair frames and in castor wheel attachment.  
9   The present invention is to provide a lightweight wheelchair that can be used as a  
10   standalone wheelchair, as well as for a recreational use coupled to a motorized vehicle,  
11   such as an electric wheelchair.